

REMARKS

In the Office Action, the Examiner rejects Claims 1-4, 6, 12, and 18 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 5,744,765 to Yamamoto ("Yamamoto") in view of U.S. Pat. No. 6,313,731 to Vance ("Vance"). Claims 7-11 and 13-17 are rejected under 35 U.S.C. § 103(a) as being obvious over Yamamoto in view of Vance and further in view of U.S. Pat. No. 4,246,452 to Chandler. In response to the Office Action, Applicant has amended independent Claims 1 and 13 to further patentably distinguish the cited references. In light of the amendments and following arguments, Applicant respectfully submits that the rejections are overcome and all claims are in condition for allowance.

The Rejection of Independent Claim 1 under §103(a) is Overcome

In the Office Action, the Examiner continues to assert that independent Claim 1 is unpatentable over Yamamoto in view of Vance. Independent Claim 1 is generally directed to an annular dome switch comprising an upper dome sheet and an underlying substrate. The upper dome sheet extends from the underlying substrate defining a raised cross-sectional shape. The raised cross-sectional shape extends at least substantially along a length of an annular shaped path. The underlying substrate comprises two substantially continuous annular concentric pads. The upper dome sheet is configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate such that the electrical contact completes an electrical circuit and that a length of the substantially continuous annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is made.

Applicant has amended Claim 1 to clarify that the upper dome sheet is configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate such that the electrical contact completes an electrical circuit and that the length of the substantially continuous annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is

made. Support for this amendment may be found at least at page 8, lines 10 to 30 of the present application.

Briefly, Vance discloses a pressure sensitive direction device which facilitates assembly and provides high tolerance for variation in alignment of components while still providing for pressure sensitive direction detection.

The Examiner identifies Figure 9 of Vance as disclosing substantially continuous annular concentric connection pads. Applicant respectfully submits that Vance does not disclose substantially continuous annular concentric connection pads because the connection pads in Vance are clearly a spiral. A spiral is not a circle and also the spirals in Vance are not wholly within each other. The spirals of Vance are therefore also not substantially annular in that a spiral has a varying radius and therefore the spirals of Vance are not annular in shape.

Furthermore, the contact regions 404a, 404b, 404c of Vance are not contact regions for a dome switch. Indeed, referring to Figure 10b of Vance it is clear that a dome switch is provided 414 but this is in the centre of the switch not in relation to the spiral contacts. In fact, contact regions 404a, 404b and 404c are actually provided for contact with the edge of the button 406.

In this way, the contact regions of Vance are not connection pads on an underlying substrate with an upper dome sheet extending therefrom. As mentioned above, Vance only discloses a single dome switch 414. The Office Action asserts that the connection regions of Vance would be used with Yamamoto by a person with ordinary skill in the art. However, Vance teaches that radially extending ridges are required to provide a conductivity path for connecting the contact regions. *See*, column 14, lines 1 to 15 of Vance. Yamamoto discloses an annular contact point 13 on the upper substrate which is not a radially extending ridge. Accordingly, the contact region 13 of Yamamoto could not be applied to the contact regions of Vance 404a, 404b and 404c in order to provide a conductivity path which is responsive to a pressure applied by the user as a function of the relative widths, because there is no radially extending ridge in the contact point 13 of Yamamoto.

Furthermore, the spirals of Vance do not teach or suggest that when an electrical contact completes an electrical circuit the length of the substantially annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is made. In contrast, Vance

explicitly teaches that a conductivity path between regions responsive to a pressure applied to radially extending edges by a user is a function of the relative width of the respective contact regions. *See, e.g.*, column 14, lines 3 to 14 of Vance.

Therefore, Vance does not rely on the length of the spiral contacts in an electrical circuit in the switch. Yamamoto also fails to teach or suggest such a feature because as previously submitted Yamamoto does not teach two substantially continuous annular concentric connection pads. None of the other cited references, taken alone or in combination, cure the deficiencies of Vance and Yamamoto.

As none of the cited references, taken alone or in combination, teaches or suggests an upper dome sheet configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate such that the electrical contact completes an electrical circuit and that a length of the substantially continuous annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is made, Applicant respectfully submits that amended Claim 1 is patentably distinct over the cited references, taken alone or in combination, such that the rejection of Claim 1 under § 103(a) is overcome. Therefore, Applicant further respectfully submits that Claim 1 is in condition for allowance.

The Rejection of Independent Claim 13 under §103(a) is Overcome

The Office Action asserts that independent Claim 13 is unpatentable over Yamamoto and Vance in view of Chandler. Claim 13 is directed to an input apparatus for a multimedia device comprising a rotator wheel, means for detecting rotational movement of the rotator wheel, and select means. The select means is defined as an annular dome switch including all of the recitations of independent Claim 1 and has been amended similarly to Claim 1 to recite that the upper dome sheet is configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate such that the electrical contact completes an electrical circuit and that a length of the substantially continuous annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is made.

As explained above, the combination of Yamamoto and Vance fails to teach or suggest the recitations of Claim 1 and thus also fails to teach or suggest the recitations of Claim 13. In particular, the combination of Yamamoto and Vance fails to teach or suggest an upper dome sheet configured to make electrical contact with the connection pads of the underlying substrate when the upper dome sheet is depressed towards the underlying substrate such that the electrical contact completes an electrical circuit and that a length of the substantially continuous annular concentric connection pads in the electrical circuit is dependent on where the electrical contact is made, as recited by Claim 13. Chandler, taken alone or in combination, with Yamamoto and Vance also fails to teach or suggest this feature.

Furthermore, Applicant previously asserted that Chandler is incompatible with Yamamoto because Yamamoto requires a tilting function to activate the dome switch. This incompatibility is true for Vance as well. Therefore, both Yamamoto and Vance require tilting to activate the switch. In contrast, Chandler requires a rotational motion to activate a switch, whereby two contact parts slide past each other on relative rotation of a conductor portion past another conductor portion. Simply put, Chandler cannot work if the rotating portion 26 tilts and Yamamoto and Vance cannot work if the tilting portions rotate. Therefore, Yamamoto and Vance are wholly incompatible with Chandler and the respective references teach away from any combination of two or more of Yamamoto, Vance, and Chandler.

Accordingly, for at least these reasons, none of the cited references, taken alone or in combination, teaches or suggests amended independent Claim 13. Applicant therefore respectfully submits that the rejection of Claim 13 is overcome and Claim 13 is in condition for allowance.

The Rejection of the Dependent Claims is Overcome

Since each of the dependent claims contain each of the recitations of a respective independent base claim, Applicant respectfully submits that the rejections of the dependent claims are overcome for at least the reasons discussed above and as such the dependent claims are patentably distinct from the cited references, taken alone or in combination, and are in condition for allowance.

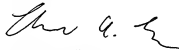
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CONCLUSION

In view of the amended claims and remarks presented above, it is respectfully submitted that all of the present claims of the present application are in condition for immediate allowance. It is therefore respectfully requested that a Notice of Allowance be issued. The Examiner is encouraged to contact Applicants' undersigned attorney to resolve any remaining issues in order to expedite examination of the present application.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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